

Opportunities and Challenges Green Jobs Fair

Sue Kateley
CALSEIA Executive Director
7/23/2009

www.calseia.org info@calseia.org

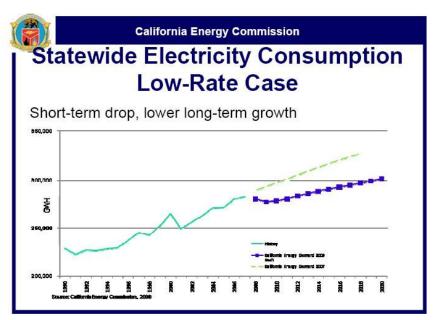
What is CALSEIA?

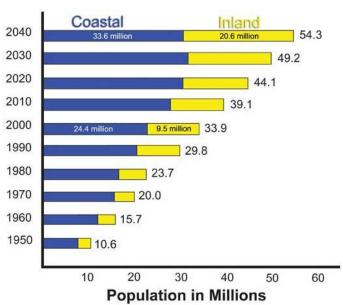
- CALifornia Solar Energy Industries Association
- Founded in 1977
- Mission: to expand the use of all solar technologies in California and establish a sustainable industry for a clean energy future
- Membership comprised of solar companies: manufacturers, distributors, contractors, engineers, designers, utilities



Energy Challenges Will Persist

- Total demand will grow
- Population moving to locations where cooling is more important
- Climate change will force change in energy consumption
- Climate change will force change in generation choices







The Big Picture Mission

- Lower energy bills for those who need it most
- Health: reducing heat-related illnesses and deaths
- Air quality: natural gas SOx, NOx, particulates
- Greenhouse Gas Emissions
- Jobs
- Community based energy
- Fairness



Do it in the Right Order

- Reduce demand (the thermostat setting)
- Energy Efficiency (replace the air conditioner, caulk, insulate, seal ducts, etc.)
- On site energy production
 - Solar Water Heating (SWH)
 - Solar Electric (PV)
- Distributed Renewable Generation
- Utility Scale Generation



Solar Technologies (in order of cost per kWh or Btu)

- Energy Efficiency (not a solar technology but essential to lowering installed cost of solar technologies)
- Solar thermal (water heating, process energy, space heating, space cooling, pool heating)
- Solar thermal electric generation
- Solar electric Photovoltaic (grid connected/no storage)
 - Polymer (not available in large volume yet, currently lowest efficiency)
 - Thin Film (currently lower efficiency means greater surface area needed)
 - Silicon (highest efficiency means less surface area needed)

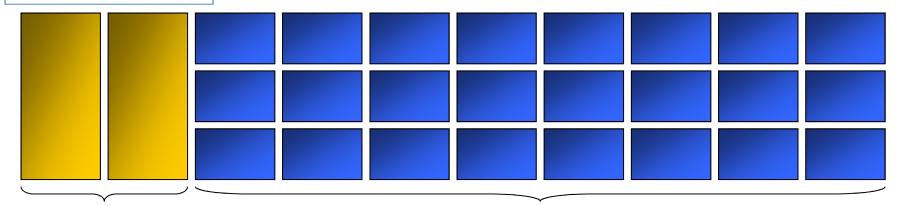


Comparing PV and Solar Thermal

Right Technology For The Job

Hot water needs: shower, laundry, dishwashing, etc.

Electricity needs: refrigerator, lighting, plug in devices



SHW (HELIODYNE GOBI 410)

Output/day¹: 22.7 kWh_{th} \leftarrow = Output/day²: 22.3 kWh Area: 80 ft² Installed cost: \$7,000 \rightarrow 1 to \rightarrow Installed cost: \$51,480

- 1: Peak output based on SRCC Category C Clear Sky for SHW (Equivalent kWh derived using 3,414 Btu/kWh)
- 2: Manufacturers spec sheet for PV at standard test conditions (5.28 kW array rating x 5.8 peak sun-hrs/day)



Solar Business Snapshot

Customer

Hedging future energy costs, doing the right thing Procurement decisions: decision making information Affordability: cash, lease, PPA, Property Tax Financing, Tax implications

Local financing programs (problem excluding, efficiency and solar thermal), Local rebates taxable

Local ordinance (homeowners' associations and solar rights) shading

Local Utility interconnect Local Permitting
(Building and fire regulations, permitting fees, green building initiatives)

Contractor: Licensing, Warranty/Service, Workforce, Sales, Marketing, Administration, bonding and insurance, utility interconnection, rebate paperwork

"Integrators": Hire contractor, investor-financed, procures product, may or may not be licensed, bonded and insured. Utility interconnection

New technology: Venture capitalists, Initial public offerings, UL Listing, Warranty

State Energy Policies: Goals (loading order, renewable portfolio, zero energy buildings), Incentives (rebates, property tax exclusion, net metering) Tariffs (time of use rates, dynamic pricing, AB1x, demand charges), Mandates (building standards RECs) Greenhouse gas regulations

Federal Energy Policies: Incentives (tax credits, accelerated depreciation, grants), R&D



Beware the Hype about those Installation Jobs

- Not as many as the news would lead you to believe
 - Near term sales affected by financial markets for both residential and commercial markets
 - Residential sales affected by job losses, loss of equity, tighter lending markets, loss of homes, fear of debt
 - Solar projects are cyclical and short term projects
 - Solar projects follow the customer

Jan 07-Jan 09 – total number of installations	PG&E	SCE	San Diego
Residential and small commercial (<30kW)	9,226	3,313	1,213
Commercial, non-profit, government (>30kW<1MW	637	286	78

14 companies installed more than 60% of these projects

Manufacturing: Research/start-up companies, silicon chip (San Jose),
 SolarWorld (Camarillo), SunEarth (Fontana), Heliodyne (Richmond), FAFCO (Chico), Solyndra (Fremont), component manufacturers



Really Important Job Info

Major qualifications for installers and helpers

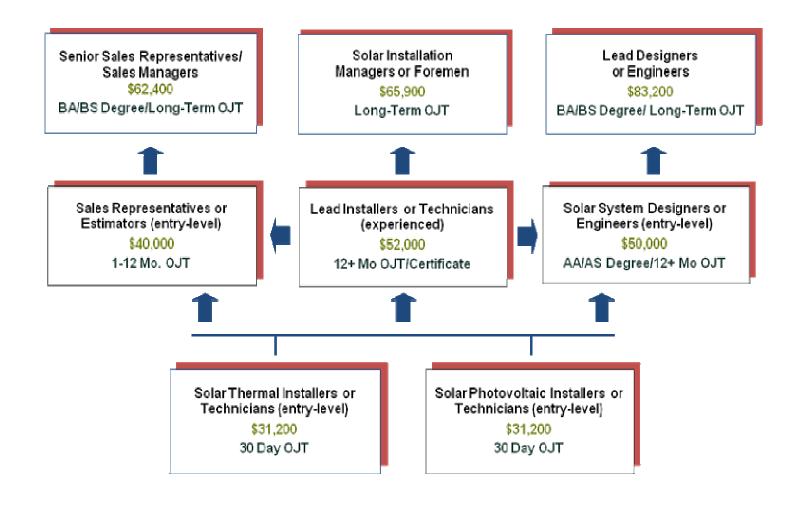
- Shows up on time
- Valid driver's license
- Not afraid of heights
- Can safely climb up and down a ladder and work on a roof
- Follows instructions accurately and safely
- Polite to customers
- Likes to work in 140° with no shade in the summer or on a cold, wet day in the winter on a steep roof
- Knowledge of technology



Other jobs seldom discussed

- Energy use assessors
- Sales and estimating
- Administration: rebate paperwork, contract processing, project scheduling
- Project management
- Inventory management
- Data processing
- Panel cleaning

Cal Community College Solar Study



Job Training – a work in progress

- Standardization
 - Lack of Standard training: an employer does not know if a graduate from School X has the training to be ready to work
 - Technology not Standardized
 - Installation not Standardized
- Pre-apprentice programs (Cypress Mandela)
- Shout out to Homeboy Industries, LAUSD/IBEW: Brian Hurd
- IBEW Apprenticeship Schools
- Community Colleges starting to standardize but the majority are focusing on PV installer training right now (<u>but if I can help</u> <u>it</u>, they will add SWH, sales, estimating, administration)



Fun Pictures









Guess which one is the solar thermal project



Thank you!



www.calseia.org

info@calseia.org

Voice mail: 916-747-6987

